IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant:	ETHEN et al.	Examiner:	Homere, J.
Serial No.:	09/858,268	Group Art Unit:	2177
Filing Date:	May 15, 2001	Docket No.:	RA-5388
			(USYS.028PA)
Title:	AUTOMATION OF COMPLEX USER-LEVEL COMMAND SEQUENCE FOR COMPUTING ATTANGEMENTS		

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APPEAL BRIEF

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Sir:

This is an Appeal Brief submitted pursuant to 37 C.F.R. § 41.37 for the above-referenced patent application. Please charge Deposit Account No. 50-0996 (USYS.028PA) in the amount of $500 for this brief in support of appeal as indicated in 37 C.F.R. § 41.20(b)(2). If necessary, authority is given to charge/credit deposit account 50-0996 (USYS.028PA) any additional fees/overages in support of this filing.

I. Real Party in Interest

The real party in interest is Unisys Corporation having a place of business at 2470 Highcrest Road, Roseville, Minnesota 55113. The above referenced patent application is assigned to Unisys Corporation.

II. Related Appeals and Interferences

Appellant is unaware of any related appeals, interferences or judicial proceedings.

III. **Status of Claims**

Claims 1-16 are presented for appeal and each of the appealed claims, 1-16, is rejected. The pending claims under appeal, as presently amended, may be found in the attached Appendix of Appealed Claims.

IV. **Status of Amendments**

No amendments were filed subsequent to the final Office Action dated June 21, 2004.

V. **Summary of Invention**

The independent claims involved in the appeal are claims 1, 13 and 14. As required by 37 C.F.R. § 41.37(c)(1)(v), a concise explanation of the subject matter defined in the independent claims involved in the appeal is provided herein. Appellant notes that representative subject matter is identified for this claim; however, the abundance of supporting subject matter in the application prohibits identifying all textual and diagrammatic references to each claimed recitation. Appellant thus submits that other application subject matter, which supports the claim but is not specifically identified below, may be found elsewhere in the application.

One embodiment of the present invention, is directed to a computer-implemented method for automating operations of a computing arrangement coupled to a message processor (e.g., FIG. 1, 100; FIG. 2, 152). The method includes establishing a pattern database including a plurality of pattern definitions and response definitions where each pattern definition is associated with one or more associated response definitions (e.g., FIG. 2, 154; p. 5, l. 14-19; example on p. 11, l. 11 – p. 12, l. 25; examples in the Appendix; p. 6, ll. 13-17). One or more of the response definitions includes one or more commands and instructions for queuing a command to a command queue having storage available for a plurality of commands (FIG. 3, #156; p. 6, l. 31 – p. 7, l. 7; example on p. 12, l.; example in Appendix, p. 15, l. 683-685). The method also includes searching the pattern database for pattern definitions that match the message character strings (p. 5, ll. 20-25; FIG. 3, #156), and for the pattern definitions that match the messages, adding associated commands to the command queue in processing the response definitions (FIG. 3, #156, #160; p. 6, l. 25 – p. 7,

l. 4; example in Appendix on p. 15, l. 683-685). The method further includes dequeuing commands from the command queue and issuing the commands to the computing arrangement (FIG. 3, #158; p. 7, ll. 8-16; example in Appendix on p. 4, l. 194 – p. 6, l. 261).

Another embodiment of the present invention is directed to an apparatus for automating operations of a computing arrangement coupled to a message processor. The apparatus includes means for establishing a pattern database (FIG. 2, #110; p. 4, l. 25 – p. 5, l. 4;) including a plurality of pattern definitions and response definitions where each pattern definition is associated with one or more associated response definitions. One or more of the response definitions includes one or more commands and instructions for queuing a command to a command queue having storage available for a plurality of commands (FIG. 3, #156; p. 6, l. 31 – p. 7, l. 7; example on p. 12, l.; example in Appendix, p. 15, l. 683-685). The apparatus also includes means for searching FIG. 2, #110; p. 4, l. 25 – p. 5, l. 4;) the pattern database for pattern definitions that match the message character strings, and means for, responsive to the pattern definitions that match the messages, adding FIG. 2, #110; p. 4, l. 25 – p. 5, l. 4;) associated commands to the command queue in processing the response definitions. The apparatus further includes means for dequeuing commands FIG. 2, #110; p. 4, l. 25 – p. 5, l. 4;) from the command queue and issuing the commands to the computing arrangement.

Another embodiment of the present invention is directed to a computing arrangement having automation of complex manual operations. The arrangement includes a host data processing system (e.g., FIG. 1, 102-*x*; p. 3, ll. 16-22), a data storage arrangement (FIG. 1, #104-*y*; #108; p. 3, ll. 23-32) coupled to the data processing system 104, and a pattern-response database configured with a plurality of pattern definitions and response definitions (FIG. 2, #154; p. 5, l. 14-19; example on p. 11, l. 11 – p. 12, l. 25; examples in the Appendix; p. 6, ll. 13-17). Each pattern definition is associated with one or more associated response definitions and one or more of the response definition s includes one or more commands and instructions for queuing a command to a command queue having storage available for a plurality of commands (FIG. 3, #156; p. 6, l. 31 – p. 7, l. 7; example on p. 12, l.; example in Appendix, p. 15, l. 683-685). The arrangement also includes a message processor (FIG. 2, #152) coupled to the pattern-response database, the host system, and to the data storage arrangement. The message processor is configured to search the pattern-response database

for pattern definitions that match input message character strings (p. 5, ll. 20-25; FIG. 3, #156), add associated commands to the command queue in processing the response definitions for pattern definitions that match the input message strings (FIG. 3, #156, #160; p. 6, l. 25 – p. 7, l. 4; example in Appendix on p. 15, l. 683-685), and dequeue commands from the command queue and issue the commands to the data storage arrangement (FIG. 3, #158; p. 7, ll. 8-16; example in Appendix on p. 4, l. 194 – p. 6, l. 261).

VI. Grounds of Rejection

Claims 1-16 are rejected under 35 U.S.C. § 102(b) over Walster *et al.* (U.S. Patent No. 5,794,239).

VII. Argument

The rejection of claims 1-16 is improper because the Examiner failed to present evidence of correspondence between the Walster teachings and the claimed invention.

Claims 1, 13, and 14

The Examiner failed to present evidence of correspondence between the Walster reference and the claimed establishment of a pattern database including a plurality of pattern definitions and response definitions. More specifically, the Examiner failed to identify teachings in the Walster reference that correspond to the claimed "one or more of the response definitions including one or more commands and instructions for queuing a command to a command queue." The Examiner alleged that "the claimed limitation of queuing commands to the command queue can be construed as commands being routed at different times to a storage system in a particular order" and that Walster similarly teaches "the issuance of a plurality of commands routed over time to a storage medium." This rationale is unfounded because it ignores Appellant's claim limitations and misconstrues the teachings of Walster.

There are no teachings in Walster of any response definition including instructions for queueing a command to a command queue. The Examiner cited Walster's FIG. 2, element 54 as meeting these limitations. However, this element simply illustrates "output from the message processor." (Col. 7, l. 13). There is no suggestion, explicit or implicit, that

Walster's pattern database 44 has response definitions including instructions for queueing commands to a command queue. Example embodiments of response definitions are provided in the Appendix to the specification and cited in the Summary above.

The Examiner also erroneously asserted that "Walster's teaching of forwarding commands to a storage medium at different times implicitly discloses the instructions for forwarding the commands to the storage medium since the instructions can be construed as the actual requests to queue the commands to the storage medium." Even though commands may be queued during the course of processing by a command processor, there is no implication that the entity issuing a command (*e.g.*, the pattern database) includes instructions for queuing the command (the response definitions with the commands and instructions). The issuing entity is not required to have instructions for queuing the commands if the processing entity itself queues the commands.

The Examiner merely indicated that Walster's pattern database includes commands; no evidence has been provided to indicate that Walster's database also contains instructions for queuing the commands. Without a presentation of correspondence to each of the claimed limitations, the Section 102(b) rejection is improper and should be reversed.

Claims 2, 5, 9, 10, and 15

Claims 2 and 5 include further limitations related to use of a command queue, and the Examiner has not shown any corresponding teachings of Walster that in any apparent way suggests, in processing a response definition associated with the pattern definition that matches a command prompt message, dequeuing a command from the command queue and submitting the command to the computing arrangement. As explained above in regards to claim 1, Walster does not suggest the claimed command queue and usage thereof. Thus, the further processing of the command queue as set forth in claims 2 and 5 is not shown by Walster.

Claims 3, 6 and 7

As to claims 3, 6 and 7, the Examiner failed to identify where Walster teaches the claimed limitations directed to pattern definitions for matching a message from a host, where the message is associated with a high-level operation of a data storage system. The Examiner

cited Walster's general teaching of pattern matching of messages and associated responses as teaching these limitations. However, Appellant submits that Walster's general teaching fails to teach pattern matching of messages associated with a high-level operation of the storage system. Without a presentation of correspondence to each of the claimed limitations, the Section 102(b) rejection is improper and should be reversed.

Claim 4

With regard to claim 4, the Examiner failed to identify where Walster teaches command queue data structures in the pattern database, as claimed. The Examiner's assertion of correspondence to Walster's pattern priorities is erroneous as Walster fails to even mention command queue data structures in the pattern database. Furthermore, Appellant fails to recognize any relationship between Walster's pattern priorities and the claimed command queue data structures. Without a presentation of correspondence to each of the claimed limitations, the Section 102(b) rejection is improper and should be reversed.

Claim 8

With regard to claim 8, the Examiner failed to present evidence of correspondence to the claimed character strings as related to the claimed command queue. The citations to Walster merely teach using delimiters in defining patterns. Appellant's claimed patterns and command queues are separate structures. As the Examiner previously asserted that Walster's patterns correspond to Appellant's claimed patterns, Walster's patterns cannot also correspond to the claimed command queues. Therefore, the Examiner is mistaken in asserting that Walster's patterns teach limitations directed to both the claimed patterns and the claimed command queues. Without a presentation of correspondence to each of the claimed limitations, the Section 102(b) rejection is improper and should be reversed.

Claims 11 and 16

The Examiner has not shown that Walster teaches or suggests the limitations in claim 11 related to a plurality of command queues and the usage thereof. As explained above in regards to claim 1, Walster does not suggest a single command queue and usage thereof. Thus, Walster is not show to teach or suggest a plurality of command queues and the claimed

usage thererof as set forth in claim 11. Without a presentation of correspondence to each of the claimed limitations, the Section 102(b) rejection is improper and should be reversed.

<u>Claim 12</u>

The Examiner has not cited any teaching of Walster, of the claim limitations related to a terminal emulation session between an operations processor and a data storage system, and submitting of commands from a operations processor to the data storage system via the terminal emulation session. Nor does Walster appear to teach or suggest these limitations. Without a presentation of correspondence to each of the claimed limitations, the Section 102(b) rejection is improper and should be reversed.
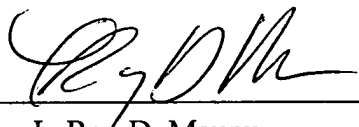
VIII. <u>Conclusion</u>

In view of the above, Appellant submits that the rejection is improper, the claimed invention is patentable, and that the rejection of claims 1-16 should be reversed. Appellant respectfully requests reversal of the rejection as applied to the appealed claims and allowance of the entire application.

Authority to charge the undersigned's deposit account was provided on the first page of this brief.

Respectfully submitted,

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APPENDIX OF APPEALED CLAIMS

1.   A computer-implemented method for automating operations of a computing arrangement coupled to a message processor, comprising:

establishing a pattern database including a plurality of pattern definitions and response definitions, each pattern definition being associated with one or more associated response definitions, and one or more of the response definitions including one or more commands and instructions for queuing a command to a command queue having storage available for a plurality of commands;

receiving message character strings at the message processor;

searching the pattern database for pattern definitions that match the message character strings; and

for the pattern definitions that match the messages, adding associated commands to the command queue in processing the response definitions; and

dequeuing commands from the command queue and issuing the commands to the computing arrangement.

2.   The method of claim 1, wherein the pattern database further includes a pattern definition that matches a command prompt message and further comprising dequeuing a command from the command queue and submitting the command to the computing arrangement in processing the response definition associated with the pattern definition that matches a command prompt message.

3.   The method of claim 1, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, and the plurality of pattern definitions includes a first definition matching a selected first message from the host, the first message associated with a selected high-level operation of the data storage system, the pattern definitions further including a plurality of definitions matching selected messages from the data storage system generated in performing the high-level operation and having associated responses that are commands required for the high-level operation,

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4.   The method of claim 1, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, further comprising:

defining a plurality of command queue data structures in the pattern database, each command queue having a priority level relative to the other command queues and having storage available for a plurality of commands;

for one or more pattern definitions that match the messages, selecting the command queues as selected command queues and adding the one or more associated responses to the selected command queues responsive to instructions associated with the pattern definitions; and

for a pattern definition that matches a command prompt message from the data storage system, dequeuing responses from the command queues in priority order and submitting the commands to the data storage system.

5.   The method of claim 4, wherein the pattern database further includes a pattern definition that matches a command prompt message and further comprising dequeuing a command from the command queue and submitting the command to the computing arrangement in processing the response definition associated with the pattern definition that matches a command prompt message.

6.   The method of claim 5, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, and the plurality of pattern definitions includes a first definition matching a selected first message from the host, the first message associated with a selected high-level operation of the data storage system, the pattern definitions further including a plurality of definitions matching selected messages from the data storage system generated in performing the high-level operation and having associated responses that are commands required for the high-level operation,

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7. The method of claim 6, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, further comprising:

establishing a terminal emulation session between the operations processor and the data storage system;

transmitting the command prompt messages from the data storage system to the operations processor; and

submitting the commands to the data storage system via the terminal emulation session.

8. The method of claim 1, further comprising:

defining the command queue as a character string; and

adding character strings representing the commands to the command queue and delimiting the character strings with a selected character.

9. The method of claim 8, wherein the pattern database further includes a pattern definition that matches a command prompt message and further comprising dequeuing a command from the command queue and submitting the command to the computing arrangement in processing the response definition associated with the pattern definition that matches a command prompt message.

10. The method of claim 9, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, and the plurality of pattern definitions includes a first definition matching a selected first message from the host, the first message associated with a selected high-level operation of the data storage system, the pattern definitions further including a plurality of definitions matching selected messages from the data storage system generated in performing the high-level operation and having associated responses that are commands required for the high-level operation,

11.   The method of claim 8, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, further comprising:

defining a plurality of command queue data structures in the pattern database, each command queue having a priority level relative to the other command queues and having storage available for a plurality of commands;

for one or more pattern definitions that match the messages, selecting the command queues as selected command queues and adding the one or more associated responses to the selected command queues responsive to instructions associated with the pattern definitions; and

for a pattern definition that matches a command prompt message from the data storage system, dequeuing responses from the command queues in priority order and submitting the commands to the data storage system.

12.   The method of claim 8, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, further comprising:

establishing a terminal emulation session between the operations processor and the data storage system;

transmitting the command prompt messages from the data storage system to the operations processor; and

submitting the commands to the data storage system via the terminal emulation session.

13.   An apparatus for automating operations of a computing arrangement coupled to a message processor, comprising:

means for establishing a pattern database including a plurality of pattern definitions and response definitions, each pattern definition being associated with one or more associated response definitions, and one or more of the response definitions including one or more commands and instructions for queuing a command to a command queue having storage available for a plurality of commands;

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means for receiving message character strings at the message processor;

means for searching the pattern database for pattern definitions that match the message character strings; and

means for, responsive to the pattern definitions that match the messages, adding associated commands to the command queue in processing the response definitions; and

means for dequeuing commands from the command queue and issuing the commands to the computing arrangement.

14.   A computing arrangement having automation of complex manual operations, comprising:

a host data processing system;

a data storage arrangement coupled to the data processing system;

a pattern-response database configured with a plurality of pattern definitions and response definitions, each pattern definition being associated with one or more associated response definitions, and one or more of the response definitions including one or more commands and instructions for queuing a command to a command queue having storage available for a plurality of commands;

a message processor coupled to the pattern-response database, the host system, and to the data storage arrangement, the message processor configured to search the pattern-response database for pattern definitions that match input message character strings, add associated commands to the command queue in processing the response definitions for pattern definitions that match the input message strings, and dequeue commands from the command queue and issuing the commands to the data storage arrangement.

15.   The computing arrangement of claim 14, wherein the pattern-response database further includes a pattern definition that matches a command prompt message, and the message processor is further configured to dequeue a command from the command queue and submit the command to the data storage arrangement in processing the response definition associated with the pattern definition that matches a command prompt message.

16.   The computing arrangement of claim 14, wherein one or more of the response definitions include instructions for queuing commands to a selected one of a plurality of command queues, each of the plurality of command queues having a priority level relative to the other command queues and having storage available for a plurality of commands, and the message processor is further configured to queue commands to selected ones of the command queues specified in the response definitions, dequeue commands from the command queues in priority order, and submit the commands to the data storage arrangement.

EVIDENCE APPENDIX

The following patent number 5,794,239 to Walster et al. was entered into the record with the Office Action mailed January 6, 2004.

RELATED PROCEEDINGS APPENDIX

None.